

# **Noise Study Report Crosby Enclave Project**

**SPA 11-001, TM 5569, REZ 11-001, STP 11-014, ER 95-08-007K**

**KIVA Project No. 11-0154594**

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**FEBRUARY 2012**



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## GLOSSARY OF TERMS AND ACRONYMS

A list of terms and acronyms used in the report is presented in Table 1.

**Table 1**  
**Glossary of Terms and Acronyms**

<b>Term</b>	<b>Definitions</b>
ADT	<i>Average Daily Traffic Volume</i>
Ambient Noise Level	<i>The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.</i>
CNEL	<i>Community Noise Equivalent Level - CNEL is the average equivalent A-weighted sound level during a 24-hour day and it is calculated by adding 5 dB to sound levels in the evening (7:00 p.m. to 10:00 p.m.) and adding 10 dB to sound levels in the night (10:00 p.m. to 7:00 a.m.).</i>
dB	<i>Decibel - A unit for measuring sound pressure level and is equal to 10 times the logarithm to the base 10 of the ratio of the measured sound pressure squared to a reference pressure, which is 20 micropascals.</i>
dBA	<i>A-Weighted Sound Level - The sound pressure level in decibels as measured on a sound level meter using the A-weighted filter network. All noise levels in this report are A-weighted.</i>
EPA	<i>Environmental Protection Agency</i>
Lden	<i>Day/Evening/Night Noise Equivalent Level – same as CNEL</i>
Leq	<i>Equivalent Noise Level - The sound level corresponding to a steady state sound level containing the same total energy as a time varying signal over a given sample period. Leq is designed to average all of the loud and quiet sound levels occurring over a time period.</i>
Leq(h)	<i>Hourly Equivalent Noise Level - The sound level corresponding to a steady state sound level containing the same total energy as a time varying signal over an hour period.</i>
mph	<i>Miles Per Hour – average vehicle travel speed</i>
NSLUs	<i>Noise Sensitive Land Uses</i>
STC	<i>Sound Transmission Class</i>
TNM	<i>Federal Highway Administration Traffic Noise Model - TNM 2.5</i>
TPM	<i>Tentative Parcel Map</i>

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## **EXECUTIVE SUMMARY**

Dudek has prepared this noise study for the Crosby Enclave project, evaluating exterior noise impacts associated with traffic along Del Dios Highway and on-site construction noise and vibration. The project site is located at the southeast corner of Del Dios Highway and Bing Crosby Boulevard within the Rancho Santa Fe community plan area in the County of San Diego. The project proposes to develop the 8.06-acre site with 13 single-family lots.

The primary existing noise source at the site is vehicular traffic from Del Dios Highway. Del Dios Highway is currently a two-lane roadway with an average daily traffic volume (ADT) of approximately 22,000. In the year 2030 the traffic volume along Del Dios Highway is projected be 26,200 ADT adjacent to the project site. No other noise sources potentially affecting the project site have been identified.

The future traffic noise is anticipated to be 60 decibels (dB) Community Noise Equivalent Level (CNEL) or less at the outdoor living area of the lots. This noise level would comply with the County's 60 dB CNEL exterior noise criterion. Noise levels would exceed 60 dB CNEL at the second floor level of the homes on Lots 4-10. Without implementation of noise mitigation measures, the noise level at the second floor of Lots 4-10 would exceed the County's 45 dB CNEL interior noise criterion. Prior to issuance of building permits, an interior noise study will be required for the homes on Lots 4-10 to ensure that the interior CNEL would not exceed 45 dB. The residences would most likely require air-conditioning and/or mechanical ventilation system to meet the County's interior noise standard. Sound-rated windows may also be required. Construction noise and vibration are not anticipated to result in significant impacts at existing residences and would comply with applicable County noise and vibration criteria.

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# **Noise Study Report Crosby Enclave Project**

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## **1.0 INTRODUCTION**

Dudek has prepared a noise study for the Crosby Enclave project, evaluating exterior noise impacts associated with Del Dios Highway as well as construction noise and vibration.

This analysis is based on the proposed project's Tentative Parcel Map (Hunsaker & Associates, Inc. 2012). References used in this report are presented in Appendix A. Sound modeling application input/output data are included in Appendix B.

## **1.1 Project Location and Description**

The Crosby Enclave project site is located south of Del Dios Highway within the San Dieguito community plan area and Santa Fe Valley Specific Plan in the County of San Diego (Figures 1 and 2). The project proposes to subdivide the property into 13 single-family lots.

## **1.2 Applicable Noise Regulations and Standards**

The County of San Diego has adopted various noise policies and standards contained within the County's General Plan Noise Element and the County Noise Ordinance.

### **County of San Diego - General Plan Noise Element**

The County has established exterior noise guidelines in the Noise Element of the County's adopted General Plan (County of San Diego 2006). These guidelines identify compatible exterior noise levels for various land use types. "Exterior Noise" means noise measured at an outdoor living area that meets specified minimum area requirements for single-family detached dwelling projects, and for other projects it means noise measured at all exterior areas which are provided for group or private usable open space.

The Noise Element states that an acoustical study is required if it appears that a noise sensitive land use (NSLU) would be subject to noise levels of Community Noise Equivalent Level CNEL equal to 60 dB or greater. An "NSLU" is defined as any residence, hospital, school, hotel, resort, library, or any other facility where quiet is an important attribute of the environment.

The Noise Element further states that if the study confirms that the project is exposed to greater than 60 dB CNEL exterior noise levels, modifications that reduce the exterior noise level to less than 60 dB CNEL and the interior noise levels to below 45 dB CNEL must be made to the development. If these modifications are not made, the development shall not be approved unless a finding is made that specific social or economic considerations warrant project approval,

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provided, that if the noise level would exceed 75 dB CNEL even with such modifications, the development shall not be approved irrespective of such social or economic considerations.

The County Department of Planning and Land Use also utilize a noise criterion for evaluating off-site noise impacts to residences or noise sensitive areas from project-related traffic. The County considers such impacts to be significant when they exceed 3 dB CNEL and either elevate noise levels above 60 dB CNEL or exceed a 3 dB increase above an already noisy existing condition (i.e., 60 dB CNEL).

A noise impact is also considered significant if project implementation will produce additional noise, which will cause any on-site or off-site, noise sensitive area to experience an increase in noise of 10 dB CNEL or more.

### **County of San Diego – Noise Ordinance**

Noise thresholds for stationary sources and construction noise are regulated through the County's Noise Ordinance, Chapter 4, "Noise Abatement and Control" (County of San Diego 2011). Section 36.404 includes sound level limits for non-construction related stationary noise sources, and Section 36.409 includes time and noise limitations for construction equipment. Both sections are summarized in the following paragraphs.

#### ***Section 36.404 Sound Level Limits – Non-Construction Activities***

This section in the County of San Diego Noise Ordinance includes 1-hour average sound level limits applicable to the project's operational (non-construction) related noise sources, such as mechanical equipment (pumps, rooftop equipment, condenser units, air-conditioning units, pneumatic equipment), operation related traffic (vehicle movement, engine noise), speakers, bells, chimes, and outdoor human activity in defined limited areas.

The allowable noise limits depend upon the zoning district and time of day. The 1-hour average sound level limits for residential zoned areas with a density of 11 or less dwelling units per acre is 50 dB between 7:00 a.m. to 10:00 p.m., and 45 dB between 10:00 p.m. and 7:00 a.m. If the measured ambient noise level exceeds the applicable limit noted above, the allowable one-hour average noise level shall be the ambient noise level.



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## ***Section 36.409 – Construction Equipment***

Section 36.409 in this ordinance sets limits on the time of day and days of the week that construction can occur as well as setting noise limits for construction activities. In summary, the ordinance prohibits operating construction equipment on:

- Mondays through Saturdays except between the hours of 7:00 a.m. and 7:00 p.m., and:
- Sundays, and days appointed by the President, Governor, or Board of Supervisors for a public fast, Thanksgiving, or holiday.

In addition, the code requires that no equipment shall be operated so as to cause an 8-hour average construction noise level in excess of 75 dB between the hours of 7:00 a.m. and 7:00 p.m. when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is being received.

## **1.3 Environmental Setting, Existing and Potential Conditions**

### **1.3.1 Settings and Locations**

The site has been graded as part of the implementation of the Starwood – Santa Fe Valley project (The Crosby). The site consists of a flat pad with manufactured slopes that extend upward to the north and downward to the east, west, and south. The proposed building pads elevations would be approximately 20 to 35 feet below the adjacent Del Dios Highway elevation. The building pads of the closest parcels to Del Dios Highway are approximately 75 feet or more from the road.

### **1.3.2 Existing Noise Conditions**

The primary existing noise source at the site is vehicular traffic along Del Dios Highway. Del Dios Highway is a two-lane road. The existing traffic volume range is approximately 22,000 ADT adjacent to the site (SANDAG 2011). No other noise sources potentially affecting the project site have been identified.

Existing NSLUs in the project's vicinity include single-family land uses located on the south side of Del Dios Highway and on the west side of Bing Crosby Boulevard. The closest existing home is approximately 280 or more feet distance from the project's nearest proposed building pad.

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### 1.3.3 Potential Build-Out Noise Conditions

Del Dios Highway will be the primary traffic noise source and is predicted to have a future year 2030 traffic volume of 26,200 ADT adjacent to the site (County of San Diego 2010).

## 1.4 Methodology and Equipment

### 1.4.1 Noise Measuring Methodology and Procedures

The existing noise environment at the project site was measured on September 21, 2011 between 11:00 a.m. and 11:20 a.m. The noise measurements were taken with a calibrated Rion NL 32 and Rion NA 27 integrating sound level meters using A-weighting and “slow” response settings. The sound level meters are equipped with 0.5-inch pre-polarized condenser microphone and pre-amplifier. The sound level meters meet the current American National Standards Institute standard for a Type 1 precision sound level meter. The sound level meters were positioned at a height of approximately 5 feet above the ground during the noise measurements. The locations of the noise measurement sites are depicted in Figure 3. The posted speed limit for the Del Dios Highway section adjacent to the site is 55 mph.

Noise measurement site M1 has an unobstructed view of Del Dios Highway. Noise measurement Site M2 was at the bottom of the slope along Del Dios Highway. This location is shielded from the traffic noise along Del Dios Highway due to the existing graded slope. The measured average sound levels were 68 dB at site M1 and 50 dB at Site M2. The results of the noise measurements and simultaneous vehicle counts are presented in Table 2.

**Table 2**  
**Existing Measured Noise Levels and Concurrent Traffic Volumes**

Site	Description	Date/Time	L <sub>eq</sub> <sup>1</sup>	Cars	MT <sup>2</sup>	HT <sup>3</sup>
M1	At 30 feet distance from Del Dios Highway centerline	September 21, 2011 11:00 a.m. to 11:20 a.m.	68	218	4	5
M2	At 90 feet distance from Del Dios Highway centerline	September 21, 2011 11:00 a.m. to 11:20 a.m.	50	218	4	5

Notes:

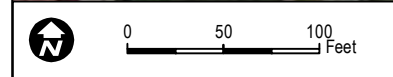
<sup>1</sup> Equivalent Continuous Sound Level (Time-Average Sound Level)

<sup>2</sup> Medium Trucks

<sup>3</sup> Heavy Trucks

Temperature 75°F, relative humidity 50%, light and variable wind, clear sky







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## **1.4.2 Noise Modeling Software**

The vehicle noise level from Del Dios Highway at the site was calculated using the Federal Highway Administration Traffic Noise Model – TNM 2.5 (FHWA 2004). TNM sound modeling input/output data are included in Appendix B.

## **1.4.3 Noise Calculations**

### **Existing Vehicle Noise levels**

Using the Traffic Noise Model –TNM 2.5, the existing Del Dios Highway hourly traffic noise level was calculated for the noise monitoring sites, based on the traffic data depicted in Table 2. Also, the existing CNEL was determined based on the data below:

Existing ADT: 22,000 along Del Dios Highway

Vehicle speed: 55 mph

Vehicle mix: 100% autos, 2% medium trucks, and 2% heavy trucks.

The results of the modeling are shown in Table 3. The modeled value Leq is 1 dB more than the measured noise level at Site M1 and 3 dB at Site M2. The greater difference between the measured and model noise level at Site M2 is most likely the result of the intervening terrain, which can sometimes result in under predicting the actual noise attenuation.

**Table 3  
Modeled Existing Traffic Noise Levels**

<b>Roadway</b>	<b>Site</b>	<b>Traffic Volume for CNEL (ADT)</b>	<b>Speed (mph)</b>	<b>Noise level (Leq)</b>	<b>Noise level (CNEL)</b>
Del Dios Highway	M1	22,000	55	69 dB	74 dB
Del Dios Highway	M2	22,000	55	53 dB	58 dB

### **Future Vehicle Noise levels**

Using the Traffic Noise Model -TNM 2.5, the Del Dios Highway future CNEL traffic noise levels were calculated for noise modeling locations at the building pads of representative parcels along Del Dios Highway. The noise modeling locations were positioned at the outdoor living areas of the lots as identified on the site plan.

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The primary input for the Traffic Noise Model-TNM 2.5 includes:

Future ADT: 26,200 along Del Dios Highway.

Vehicle speed: 55 mph

Vehicle mix: 96% autos, 2% medium trucks, and 2% heavy trucks.

The noise level at the second floor level façade of the homes facing Del Dios Highway are shown in Table 4. It should be noted that the outdoor use area requirement is met at first floor level, therefore, the balcony areas are not necessary to meet the minimum 10% of net lot area requirement discussed in Section 2.1 below. The TNM sound modeling input/output data is included in Appendix B.

**Table 4  
Future Traffic Noise Levels**

<b>Modeling Location</b>	<b>CNEL Noise Level (1st floor)</b>	<b>CNEL Noise Level (2<sup>nd</sup> floor)</b>
Lot 4	<55 dB	61 dB
Lot 7	<55 dB	62 dB
Lot 9	<55 dB	64 dB
Lot 10	59 dB	64 dB
Lot 11	56 dB	59 dB
Lot 12	55 dB	59 dB
Lot 13	<55 dB	57 dB

## **2.0 NOISE SENSITIVE LAND USES (NSLU)**

### **2.1 Guidelines for the Determination of Significance**

Project implementation will result in the exposure of any on- or off-site, existing, or reasonably foreseeable future NSLU to exterior or interior noise in excess of any of the following:

A. Exterior Locations:

- i. 60 dB (CNEL); or
- ii. An increase of 10 dB (CNEL) over pre-existing noise.

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In the case of single-family residential detached NSLUs, exterior noise shall be measured at an outdoor living area which adjoins and is on the same lot as the dwelling, and which contains at least the following minimum area:

- (1) Net lot area up to 4,000 square feet: 400 square feet
- (2) Net lot area 4,000 square feet to 10 acres: 10% of net lot area
- (3) Net lot area over 10 acres: 1 acre.

For all other projects, exterior noise shall be measured at all exterior areas provided for group or private usable open space.

### **B. Interior Locations:**

45 dB (CNEL) except for the following cases:

- i. Rooms which are usually occupied only a part of the day (schools, libraries, or similar facilities), the interior one-hour average sound level due to noise outside should not exceed 45 dB(A).
- ii. Corridors, hallways, stairwells, closets, bathrooms, or any room with a volume less than 490 cubic feet.

## **3.0 ANALYSIS OF PROJECT EFFECTS AND POTENTIAL NOISE IMPACTS**

In the future, Del Dios Highway is anticipated to be the primary noise source that will affect the site. The noise measurements and traffic noise modeling results indicate that existing and future traffic noise levels at all the parcels would be less than the County's 60 dB CNEL exterior noise criterion at the outdoor living areas. As previously shown in Table 4, the noise levels at the outdoor living areas of the homes would range up to 59 dB CNEL. Thus, each of the lots also has the required minimum outdoor use area exposed to noise levels of 60 dB CNEL or less.

The County requires that interior noise levels not exceed a CNEL of 45 dB. Typically, with the windows open, building shells provide approximately 15 dB of noise reduction. The second floor noise level would range from 61 to 64 dB CNEL at Lots 4-10. Therefore, without mitigation the interior noise level for habitable spaces would exceed with the County's 45 dB CNEL interior noise criterion for the homes on Lots 4-10.

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## **4.0 OPERATION ACTIVITIES**

Noise thresholds for operation activities are regulated through the County's Noise Ordinance, County of San Diego 2011) "Noise Abatement and Control". Section 36.404 ( includes sound level limits for non-construction related stationary noise sources, i.e., 1-hour average sound level limits for the project's operational related noise sources, such as mechanical equipment (pumps, rooftop equipment, condenser units, A/C units, pneumatic equipment), operation related traffic (vehicle movement, engine noise), speakers, bells, chimes, and outdoor human activity in defined limited areas.

The allowable noise limits depend upon the zoning district and time of day. The one-hour average sound level limits for residential zoned areas with a density of 11 or less dwelling units per acre is 50 dB between 7:00 a.m. to 10:00 p.m., and 45 dB between 10:00 p.m. and 7:00 a.m. If the measured ambient noise level exceeds the applicable limit noted above, the allowable one-hour average noise levels shall be the ambient noise level.

The project's operational noise sources would include air-conditioning units at each of the homes. It is anticipated the air-conditioning units would most be Lennox Model XC17 048. These units have a manufacture's sound power rating of 73 dB (Lennox 2010). The units would be installed along the back of the homes (please see Attachment B for the unit locations). The units would be located a minimum of 9 feet from the closet residential property line. Also, there would be 6-foot high masonry walls installed along the property line between each of the homes. With these sound walls, the resulting noise level would be 45 dB or less at each of the adjoining residential properties. This noise level would meet the San Diego County Code Section 36.404, one-hour average sound level limits of 50 dB between 7:00 a.m. to 10:00 p.m., and 45 dB between 10:00 p.m. and 7:00 a.m.

## **5.0 CONSTRUCTION ACTIVITIES**

Noise thresholds for construction noise are regulated through the County's Noise Ordinance, Chapter 4 "Noise Abatement and Control". Section 36.409 in this ordinance sets limits on the time of day and days of the week that construction can occur as well as setting noise limits for construction activities. In summary, the ordinance prohibits operating construction equipment on:

- Mondays through Saturdays except between the hours of 7 a.m. and 7 p.m., and:
- Sundays, and days appointed by the President, Governor, or Board of Supervisors for a public fast, Thanksgiving, or holiday.

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In addition, the code requires that no equipment shall be operated so as to cause an eight-hour average construction noise level in excess of 75 dB between the hours of 7:00 a.m. and 7:00 p.m. when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is being received.

### **5.1 Construction Noise**

Construction noise and vibration are temporary phenomena. Construction noise and vibration levels will vary from hour-to-hour and day-to-day, depending on the equipment in use, the operations being performed, and the distance between the source and receptor.

The site has been previously graded and the project's construction activities would include:

- *Final Grading.* Sources could include such equipment as loaders and backhoes.
- *Construction of foundations.* Sources could include heavy concrete trucks and mixers.
- *Facade and interior construction.* Sources could include hammering, drilling, generators, compressors, and light truck traffic.
- *Mechanical Equipment/Pump systems installation.* Sources could include hammering, drilling, generators, compressors, and light truck traffic.
- *Site cleanup.* Sources could include trucks, landscape rollers, and compactors.

The Environmental Protection Agency (EPA) has compiled data regarding the noise-generating characteristics of specific types of construction equipment. The typical maximum noise levels for various pieces of construction equipment at a distance of 50 feet are presented in Table 5.

Noise levels from equipment shown in Table 5 decrease with distance from the construction site at a rate of approximately 6 dB per doubling of distance.

Note that the equipment noise levels presented in Table 5 are maximum noise levels. The equipment operates in alternating cycles of full power and low power, thus, producing noise levels less than the maximum level. The average sound level of the construction activity also depends upon the amount of time that the equipment operates and the intensity of the construction during the time period.

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**Table 5**  
**Construction Equipment Noise Levels**

Equipment Type	"Typical" Equipment dB(A) at 50 feet	"Quiet" <sup>1</sup> Equipment dB(A) at 50 feet
Air Compressor	81	71
Backhoe	85	80
Concrete Pump	82	80
Concrete Vibrator	76	70
Truck, Crane	88	80
Dozer	87	83
Generator	78	71
Loader	84	80
Paver	88	80
Pneumatic Tools	85	75
Water Pump	76	71
Power Hand Saw	78	70
Shovel	82	80
Trucks	88	83

<sup>1</sup> Quieted equipment: with enclosures, mufflers, or other noise-reducing features.

## 5.2 Construction Noise Impact to Adjacent Off-Site Residences

The nearest noise sensitive receptors are single-family residences located west and south of the project site, approximately 280 feet or more from the proposed building pads. The equipment distance sound attenuation for 280 feet would be 15 dB, resulting in maximum noise levels ranging from 63 to 73 dB for "typical" equipment and from 55 to 68 dB for "quiet" equipment at this distance.

The proposed building pad sites would require minimal grading as the lots have been previously graded and are situated within the flat portion of the site. The edge of the building pads would be located approximately 110 feet or more from the closest property lines. Based on previous noise measurements that we have made of the type and number of pieces of primary equipment anticipated to be used for this project, (i.e., loaders, a backhoes and haul trucks), the eight-hour average sound level would range up to approximately 75 dB at 50 feet from the building pads. Thus, the construction noise level is calculated to range up to 68 dB at the property lines of the closest residences. Consequently, the construction noise level would comply with the County's 75 dB noise criterion.



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## **6.0 GROUND-BORNE VIBRATION IMPACTS**

Ground-borne vibration is typically attenuated over short distances. The project would not use equipment that generates significant vibration levels. Construction equipment would be located approximately 280 or more feet from the closest existing homes. Based on the anticipated construction equipment and distance from the equipment to the homes the project would result in vibration that would be below the level of human perception. Thus, construction vibration would not disturb the residences and the potential vibration impacts to these residential structures are less than significant.

## **7.0 MITIGATION MEASURES**

Prior to issuance of building permits, an interior noise study will be required for the homes on Lots 4-10 to ensure that the interior CNEL would not exceed 45 dB. The residences would most likely require air-conditioning and/or mechanical ventilation system to meet the County's interior noise standard. Sound-rated windows may also be required.

## **8.0 SUMMARY OF PROJECT IMPACTS, MITIGATION, AND CONCLUSION**

### **Vehicle Noise Impact and Mitigation**

The noise measurement and modeling results in this report indicate that existing and future Del Dios Highway vehicle noise level at the outdoor living area of the proposed parcels would comply with the County's 60 CNEL exterior noise criterion. Thus, the noise impact would be less than significant.

The noise level at the proposed second floor level of the homes on Lots 4-10 would exceed 60 dB CNEL. Thus, without mitigation the interior noise level would exceed the County's 45 dB CNEL interior noise criterion. Prior to issuance of building permits, an interior noise study will be required for the homes on Lots 4-10 to ensure that the interior CNEL would not exceed 45 dB. The residences would most likely require air-conditioning and/or mechanical ventilation system to meet the County's interior noise standard. Sound-rated windows may also be required.

### **Construction Noise and Vibration Impact**

The construction eight-hour average noise level is calculated to range up to 68 dB at the property lines of the closest residences. Consequently, the construction noise level would comply with the County's 75 dB noise criterion and the noise impact would be less than significant.


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Based on the anticipated construction equipment and distance from the equipment to the homes, construction activities would result in vibration anticipated to be below the level of human perception. Thus, construction vibration would not disturb the residences and the potential vibration impacts to these residential structures are less than significant.

### **9.0 CERTIFICATION**

This report has been prepared by Mr. Mike Komula, who is on the County of San Diego approved Acoustical Consultant list.



Mike Komula  
Senior Acoustician

# **APPENDIX A**

## *References*



## APPENDIX A

### References

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FHWA (Federal Highway Administration). 2004. *FHWA Traffic Noise Model User's Guide* (Version 2.5 Addendum). April.

San Diego, County of. 2006. *San Diego County General Plan Part VIII Noise Element*. September 27.

San Diego, County of. 2010. *County of San Diego General Plan Update EIR 2030 Planning Commission Recommended LOS and Volume Plot Rancho Santa Fe Area*. September 3.

San Diego, County of. 2011. *San Diego County Noise Ordinance, Chapter 4 – Noise Abatement and Control*. September.

SANDAG (San Diego Association of Governments). 2011. *Regional Economic Development Information System Version 3.5*.

## **APPENDIX A**

### **References**

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# **APPENDIX B**

*TNM Sound Modeling Input/Output Data and A/C  
Unit Modeling Data*





**INPUT: ROADWAYS**
**Crosby**

Dudek												
mk												
				10 February 2012								
				TNM 2.5								
INPUT: ROADWAYS								Average pavement type shall be used unless				
PROJECT/CONTRACT:		Crosby						a State highway agency substantiates the use				
RUN:		Calibration						of a different type with the approval of FHWA				
Roadway			Points									
Name		Width	Name	No.	Coordinates (pavement)		Flow Control			Segment		
					X	Y	Z	Control	Speed	Percent	Pvmt	On
								Device	Constraint	Vehicles	Type	Struct?
										Affected		
		ft			ft	ft	ft		mph	%		
Del Dios Highway (EB)		12.0	point2	2	6,281,702.5	1,958,515.2	240.00				OGAC	
			point3	3	6,281,917.5	1,958,614.9	230.00				OGAC	
			point4	4	6,282,067.0	1,958,685.6	229.00				OGAC	
			point5	5	6,282,225.5	1,958,757.8	225.00				OGAC	
			point6	6	6,282,347.5	1,958,816.8	220.00				OGAC	
			point7	7	6,282,461.5	1,958,879.6	215.00				OGAC	
			point8	8	6,282,553.0	1,958,929.5	210.00				OGAC	
			point9	9	6,282,638.5	1,958,972.8	205.00				OGAC	
			point10	10	6,282,729.0	1,959,019.9	200.00				OGAC	
			point11	11	6,282,814.0	1,959,069.8	195.00				OGAC	
			point12	12	6,282,898.0	1,959,127.4	190.00				OGAC	
			point13	13	6,283,128.5	1,959,295.1	180.00					
Del Dios Highway (WB)		12.0	point14	14	6,283,114.0	1,959,310.9	180.00				OGAC	
			point15	15	6,282,866.5	1,959,130.0	190.00				OGAC	
			point16	16	6,282,782.5	1,959,072.4	195.00				OGAC	
			point17	17	6,282,704.0	1,959,025.1	200.00				OGAC	
			point18	18	6,282,617.5	1,958,979.2	205.00				OGAC	
			point19	19	6,282,533.5	1,958,938.6	210.00				OGAC	
			point20	20	6,282,442.0	1,958,895.4	215.00				OGAC	
			point21	21	6,282,333.0	1,958,844.2	220.00				OGAC	
			point22	22	6,282,216.5	1,958,789.2	225.00				OGAC	
			point23	23	6,282,065.5	1,958,719.8	229.00				OGAC	
			point24	24	6,281,946.5	1,958,663.4	230.00				OGAC	
			point25	25	6,281,685.5	1,958,542.8	240.00					

**INPUT: TRAFFIC FOR LAeq1h Volumes**
**Crosby**

Dudek mk													
INPUT: TRAFFIC FOR LAeq1h Volumes													
PROJECT/CONTRACT:	Crosby												
RUN:	Calibration												
Roadway	Points												
Name	Name	No.	Segment										
			Autos										
			V	S	V	S	V	S	V	S	V	S	
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	
Del Dios Highway (EB)	point2	2	327	55	6	55	8	55	0	0	0	0	
	point3	3	327	55	6	55	8	55	0	0	0	0	
	point4	4	327	55	6	55	8	55	0	0	0	0	
	point5	5	327	55	6	55	8	55	0	0	0	0	
	point6	6	327	55	6	55	8	55	0	0	0	0	
	point7	7	327	55	6	55	8	55	0	0	0	0	
	point8	8	327	55	6	55	8	55	0	0	0	0	
	point9	9	327	55	6	55	8	55	0	0	0	0	
	point10	10	327	55	6	55	8	55	0	0	0	0	
	point11	11	327	55	6	55	8	55	0	0	0	0	
	point12	12	327	55	6	55	8	55	0	0	0	0	
	point13	13											
Del Dios Highway (WB)	point14	14	327	55	6	55	7	55	0	0	0	0	
	point15	15	327	55	6	55	7	55	0	0	0	0	
	point16	16	327	55	6	55	7	55	0	0	0	0	
	point17	17	327	55	6	55	7	55	0	0	0	0	
	point18	18	327	55	6	55	7	55	0	0	0	0	
	point19	19	327	55	6	55	7	55	0	0	0	0	
	point20	20	327	55	6	55	7	55	0	0	0	0	
	point21	21	327	55	6	55	7	55	0	0	0	0	
	point22	22	327	55	6	55	7	55	0	0	0	0	
	point23	23	327	55	6	55	7	55	0	0	0	0	
	point24	24	327	55	6	55	7	55	0	0	0	0	

**INPUT: TRAFFIC FOR LAeq1h Volumes**

**Crosby**

	point25	25										
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**INPUT: RECEIVERS**
**Crosby**

Dudek mk											
<b>INPUT: RECEIVERS</b>											
<b>PROJECT/CONTRACT:</b>	<b>Crosby</b>										
<b>RUN:</b>	<b>Calibration</b>										
<b>Receiver</b>											
<b>Name</b>	<b>No.</b>	<b>#DUs</b>	<b>Coordinates (ground)</b>			<b>Height</b>	<b>Input Sound Levels and Criteria</b>				<b>Active</b>
			<b>X</b>	<b>Y</b>	<b>Z</b>	<b>above</b>	<b>Existing</b>	<b>Impact Criteria</b>		<b>NR</b>	<b>in</b>
						<b>Ground</b>	<b>L<sub>Aeq</sub>1h</b>	<b>L<sub>Aeq</sub>1h</b>	<b>Sub'l</b>	<b>Goal</b>	<b>Calc.</b>
			<b>ft</b>	<b>ft</b>	<b>ft</b>	<b>ft</b>	<b>dBA</b>	<b>dBA</b>	<b>dB</b>	<b>dB</b>	
M1	1	1	6,282,719.5	1,958,985.9	203.00	5.00	0.00	66	10.0	8.0	Y
M2	2	1	6,282,681.5	1,958,899.2	185.00	5.00	0.00	66	10.0	8.0	Y
House Lot 10	4	1	6,282,767.0	1,958,885.0	185.00	5.00	0.00	66	10.0	8.0	Y
House Lot 9	5	1	6,282,702.0	1,958,848.0	186.00	5.00	0.00	66	10.0	8.0	Y
House Lot 8	7	1	6,282,609.0	1,958,784.0	186.00	5.00	0.00	66	10.0	8.0	Y
House Lot 7	9	1	6,282,567.5	1,958,751.2	187.00	5.00	0.00	66	10.0	8.0	Y
House Lot 4	11	1	6,282,408.0	1,958,608.4	191.00	5.00	0.00	66	10.0	8.0	Y
Outdoor Area Lot 11	13	1	6,282,267.5	1,958,620.1	192.00	5.00	0.00	66	10.0	8.0	Y
Outdoor Area Lot 12	15	1	6,282,208.5	1,958,605.8	195.00	5.00	0.00	66	10.0	8.0	Y
House Lot 13	17	1	6,282,117.0	1,958,575.6	196.00	5.00	0.00	66	10.0	8.0	Y
Outdoor Area Lot 13	18	1	6,282,100.0	1,958,542.8	196.00	5.00	0.00	66	10.0	8.0	Y

INPUT: BARRIERS

Crosby

Dudek																			
mk																			
				10 February 2012															
				TNM 2.5															
INPUT: BARRIERS																			
PROJECT/CONTRACT:				Crosby															
RUN:				Calibration															
Barrier									Points										
Name	Type	Height		If Wall	If Berm			Add'tnl	Name	No.	Coordinates (bottom)			Height	Segment				
		Min	Max	\$ per	\$ per	Top	Run:Rise	\$ per			X	Y	Z	at	Seg Ht	Perturbs	On	Important	
				Unit	Unit	Width		Unit						Point	Incre-	#Up	#Dn	Struct?	Reflec-
				Area	Vol.			Length							ment				tions?
		ft	ft	\$/sq ft	\$/cu yd	ft	ft:ft	\$/ft			ft	ft	ft	ft	ft				
Top of Slope	W	0.00	99.99	0.00				0.00	point1	1	6,282,022.5	1,958,500.9	220.00	0.00	0.00	0	0		
									point2	2	6,282,010.5	1,958,527.1	225.00	0.00	0.00	0	0		
									point3	3	6,282,010.5	1,958,574.2	230.00	0.00	0.00	0	0		
									point4	4	6,282,077.5	1,958,635.9	229.00	0.00	0.00	0	0		
									point5	5	6,282,160.0	1,958,668.6	228.00	0.00	0.00	0	0		
									point6	6	6,282,233.5	1,958,714.5	225.00	0.00	0.00	0	0		
									point7	7	6,282,368.5	1,958,781.4	220.00	0.00	0.00	0	0		
									point8	8	6,282,510.0	1,958,857.4	215.00	0.00	0.00	0	0		
									point9	9	6,282,579.5	1,958,896.8	210.00	0.00	0.00	0	0		
									point10	10	6,282,684.5	1,958,962.2	205.00	0.00	0.00	0	0		
									point11	11	6,282,773.5	1,959,013.4	200.00	0.00	0.00	0	0		
									point12	12	6,282,857.5	1,959,059.2	195.00	0.00	0.00	0	0		
									point13	13	6,282,941.0	1,959,110.4	190.00	0.00	0.00	0	0		
									point14	14	6,283,155.0	1,959,259.8	180.00	0.00					



**INPUT: ROADWAYS**
**Crosby**

Dudek												
mk												
<b>INPUT: ROADWAYS</b>				<b>10 February 2012</b>				<b>Average pavement type shall be used unless</b>				
<b>PROJECT/CONTRACT:</b>				<b>TNM 2.5</b>				<b>a State highway agency substantiates the use</b>				
<b>RUN:</b>				<b>Future Conditions</b>				<b>of a different type with the approval of FHWA</b>				
<b>Roadway</b>		<b>Points</b>										
<b>Name</b>	<b>Width</b>	<b>Name</b>	<b>No.</b>	<b>Coordinates (pavement)</b>		<b>Flow Control</b>			<b>Segment</b>			
				<b>X</b>	<b>Y</b>	<b>Z</b>	<b>Control</b>	<b>Speed</b>	<b>Percent</b>	<b>Pvmt</b>	<b>On</b>	
							<b>Device</b>	<b>Constraint</b>	<b>Vehicles</b>	<b>Type</b>	<b>Struct?</b>	
									<b>Affected</b>			
	ft			ft	ft	ft		mph	%			
Del Dios Highway (EB)	12.0	point2	2	6,281,702.5	1,958,515.2	240.00				OGAC		
		point3	3	6,281,917.5	1,958,614.9	230.00				OGAC		
		point4	4	6,282,067.0	1,958,685.6	229.00				OGAC		
		point5	5	6,282,225.5	1,958,757.8	225.00				OGAC		
		point6	6	6,282,347.5	1,958,816.8	220.00				OGAC		
		point7	7	6,282,461.5	1,958,879.6	215.00				OGAC		
		point8	8	6,282,553.0	1,958,929.5	210.00				OGAC		
		point9	9	6,282,638.5	1,958,972.8	205.00				OGAC		
		point10	10	6,282,729.0	1,959,019.9	200.00				OGAC		
		point11	11	6,282,814.0	1,959,069.8	195.00				OGAC		
		point12	12	6,282,898.0	1,959,127.4	190.00				OGAC		
		point13	13	6,283,128.5	1,959,295.1	180.00						
Del Dios Highway (WB)	12.0	point14	14	6,283,114.0	1,959,310.9	180.00				OGAC		
		point15	15	6,282,866.5	1,959,130.0	190.00				OGAC		
		point16	16	6,282,782.5	1,959,072.4	195.00				OGAC		
		point17	17	6,282,704.0	1,959,025.1	200.00				OGAC		
		point18	18	6,282,617.5	1,958,979.2	205.00				OGAC		
		point19	19	6,282,533.5	1,958,938.6	210.00				OGAC		
		point20	20	6,282,442.0	1,958,895.4	215.00				OGAC		
		point21	21	6,282,333.0	1,958,844.2	220.00				OGAC		
		point22	22	6,282,216.5	1,958,789.2	225.00				OGAC		
		point23	23	6,282,065.5	1,958,719.8	229.00				OGAC		
		point24	24	6,281,946.5	1,958,663.4	230.00				OGAC		
		point25	25	6,281,685.5	1,958,542.8	240.00						

**INPUT: TRAFFIC FOR LAeq1h Volumes**
**Crosby**

Dudek mk													
INPUT: TRAFFIC FOR LAeq1h Volumes													
PROJECT/CONTRACT:	Crosby												
RUN:	Future Conditions												
Roadway	Points												
Name	Name	No.	Segment										
			Autos										
			V	S	V	S	V	S	V	S	V	S	
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	
Del Dios Highway (EB)	point2	2	1258	55	26	55	26	55	0	0	0	0	
	point3	3	1258	55	26	55	26	55	0	0	0	0	
	point4	4	1258	55	26	55	26	55	0	0	0	0	
	point5	5	1258	55	26	55	26	55	0	0	0	0	
	point6	6	1258	55	26	55	26	55	0	0	0	0	
	point7	7	1258	55	26	55	26	55	0	0	0	0	
	point8	8	1258	55	26	55	26	55	0	0	0	0	
	point9	9	1258	55	26	55	26	55	0	0	0	0	
	point10	10	1258	55	26	55	26	55	0	0	0	0	
	point11	11	1258	55	26	55	26	55	0	0	0	0	
	point12	12	1258	55	26	55	26	55	0	0	0	0	
	point13	13											
Del Dios Highway (WB)	point14	14	1258	55	26	55	26	55	0	0	0	0	
	point15	15	1258	55	26	55	26	55	0	0	0	0	
	point16	16	1258	55	26	55	26	55	0	0	0	0	
	point17	17	1258	55	26	55	26	55	0	0	0	0	
	point18	18	1258	55	26	55	26	55	0	0	0	0	
	point19	19	1258	55	26	55	26	55	0	0	0	0	
	point20	20	1258	55	26	55	26	55	0	0	0	0	
	point21	21	1258	55	26	55	26	55	0	0	0	0	
	point22	22	1258	55	26	55	26	55	0	0	0	0	
	point23	23	1258	55	26	55	26	55	0	0	0	0	
	point24	24	1258	55	26	55	26	55	0	0	0	0	



**INPUT: TRAFFIC FOR LAeq1h Volumes**

**Crosby**

	point25	25										
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**INPUT: RECEIVERS**
**Crosby**

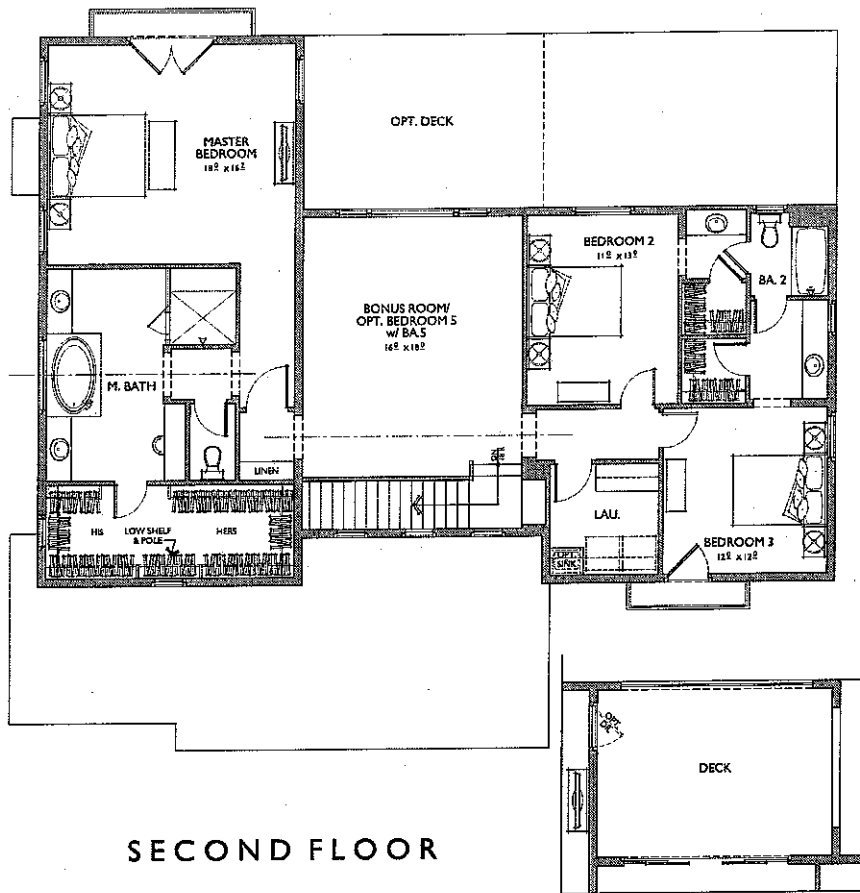
Dudek mk											
<b>INPUT: RECEIVERS</b>											
<b>PROJECT/CONTRACT:</b>	<b>Crosby</b>										
<b>RUN:</b>	<b>Future Conditions</b>										
<b>Receiver</b>											
<b>Name</b>	<b>No.</b>	<b>#DUs</b>	<b>Coordinates (ground)</b>			<b>Height</b>	<b>Input Sound Levels and Criteria</b>				<b>Active</b>
			<b>X</b>	<b>Y</b>	<b>Z</b>	<b>above</b>	<b>Existing</b>	<b>Impact Criteria</b>		<b>NR</b>	<b>in</b>
						<b>Ground</b>	<b>LAeq1h</b>	<b>LAeq1h</b>	<b>Sub'l</b>	<b>Goal</b>	<b>Calc.</b>
			<b>ft</b>	<b>ft</b>	<b>ft</b>	<b>ft</b>	<b>dBA</b>	<b>dBA</b>	<b>dB</b>	<b>dB</b>	
M1	1	1	6,282,719.5	1,958,985.9	203.00	5.00	0.00	66	10.0	8.0	Y
M2	2	1	6,282,681.5	1,958,899.2	185.00	5.00	0.00	66	10.0	8.0	Y
House Lot 10	4	1	6,282,767.0	1,958,885.0	185.00	15.00	0.00	66	10.0	8.0	Y
House Lot 9	5	1	6,282,702.0	1,958,848.0	186.00	15.00	0.00	66	10.0	8.0	Y
House Lot 8	7	1	6,282,609.0	1,958,784.0	186.00	15.00	0.00	66	10.0	8.0	Y
House Lot 7	9	1	6,282,567.5	1,958,751.2	187.00	15.00	0.00	66	10.0	8.0	Y
House Lot 4	11	1	6,282,408.0	1,958,608.4	191.00	15.00	0.00	66	10.0	8.0	Y
Outdoor Area Lot 11	13	1	6,282,267.5	1,958,620.1	192.00	15.00	0.00	66	10.0	8.0	Y
Outdoor Area Lot 12	15	1	6,282,208.5	1,958,605.8	195.00	15.00	0.00	66	10.0	8.0	Y
House Lot 13	17	1	6,282,117.0	1,958,575.6	196.00	15.00	0.00	66	10.0	8.0	Y
Outdoor Area Lot 13	18	1	6,282,100.0	1,958,542.8	196.00	15.00	0.00	66	10.0	8.0	Y

INPUT: BARRIERS

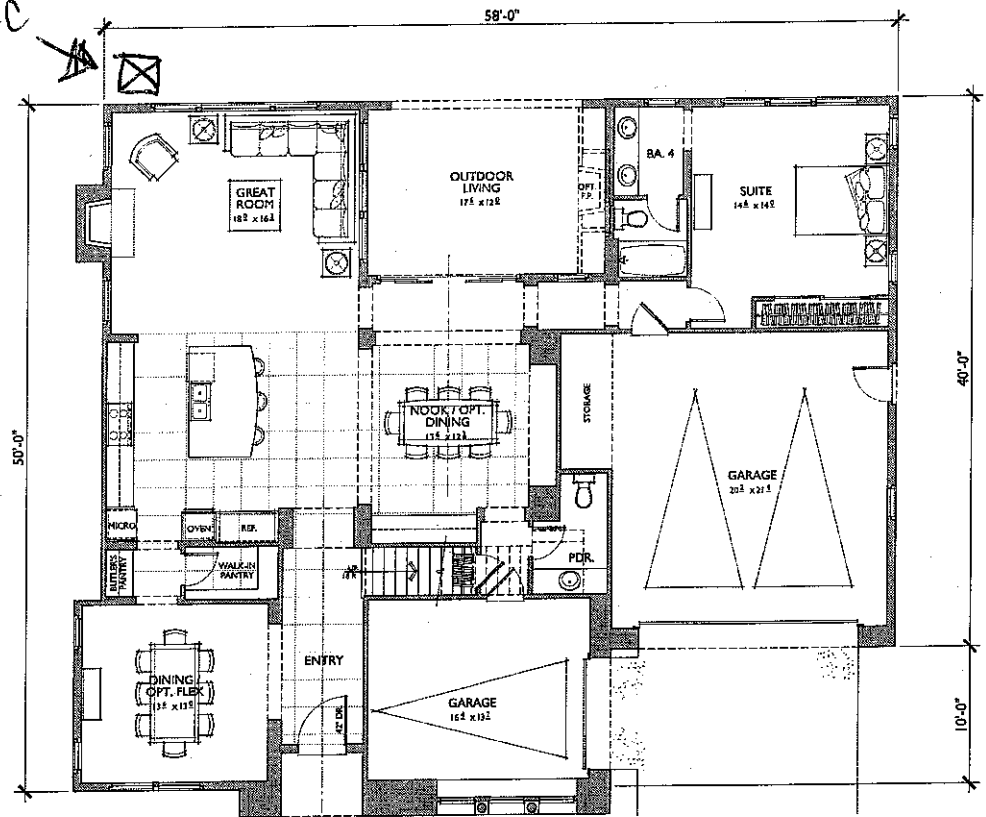
Crosby

Dudek																				
mk																				
INPUT: BARRIERS																				
PROJECT/CONTRACT:																				
RUN:																				
Barrier																				
Name	Type	Height		If Wall	If Berm			Add'tnl	Name	No.	Coordinates	(bottom)	Height	Segment						
		Min	Max	\$ per	\$ per	Top	Run:Rise	\$ per			X	Y	Z	at	Seg Ht	Perturbs	On	Important		
				Unit	Unit	Width		Unit						Point	Incre-	#Up	#Dn	Struct?	Reflec-	
				Area	Vol.			Length							ment				tions?	
		ft	ft	\$/sq ft	\$/cu yd	ft	ft:ft	\$/ft			ft	ft	ft	ft	ft					
Top of Slope	W	0.00	99.99	0.00				0.00	point1	1	6,282,022.5	1,958,500.9	220.00	0.00	0.00	0	0			
									point2	2	6,282,010.5	1,958,527.1	225.00	0.00	0.00	0	0			
									point3	3	6,282,010.5	1,958,574.2	230.00	0.00	0.00	0	0			
									point4	4	6,282,077.5	1,958,635.9	229.00	0.00	0.00	0	0			
									point5	5	6,282,160.0	1,958,668.6	228.00	0.00	0.00	0	0			
									point6	6	6,282,233.5	1,958,714.5	225.00	0.00	0.00	0	0			
									point7	7	6,282,368.5	1,958,781.4	220.00	0.00	0.00	0	0			
									point8	8	6,282,510.0	1,958,857.4	215.00	0.00	0.00	0	0			
									point9	9	6,282,579.5	1,958,896.8	210.00	0.00	0.00	0	0			
									point10	10	6,282,684.5	1,958,962.2	205.00	0.00	0.00	0	0			
									point11	11	6,282,773.5	1,959,013.4	200.00	0.00	0.00	0	0			
									point12	12	6,282,857.5	1,959,059.2	195.00	0.00	0.00	0	0			
									point13	13	6,282,941.0	1,959,110.4	190.00	0.00	0.00	0	0			
									point14	14	6,283,155.0	1,959,259.8	180.00	0.00						





OPT. DECK  
@ BONUS ROOM 227 SQ. FT.



PLAN I  
3,314 SQ. FT.  
TARGET: 3,300 SQ. FT.  
4 BEDROOMS / 3.5 BATH  
3 - CAR GARAGE

FLOOR AREA TABLE	
1ST FLOOR	1,678 SQ. FT.
2ND FLOOR	1,636 SQ. FT.
TOTAL	3,314 SQ. FT.
1-CAR GARAGE	229 SQ. FT.
2-CAR GARAGE	488 SQ. FT.
OUTDOOR LIVING	227 SQ. FT.

NOTE: SQUARE FOOTAGE MAY VARY DUE TO METHOD OF CALCULATION

11.09.11

0 2 4 SCALE 1/4" = 1'-0"

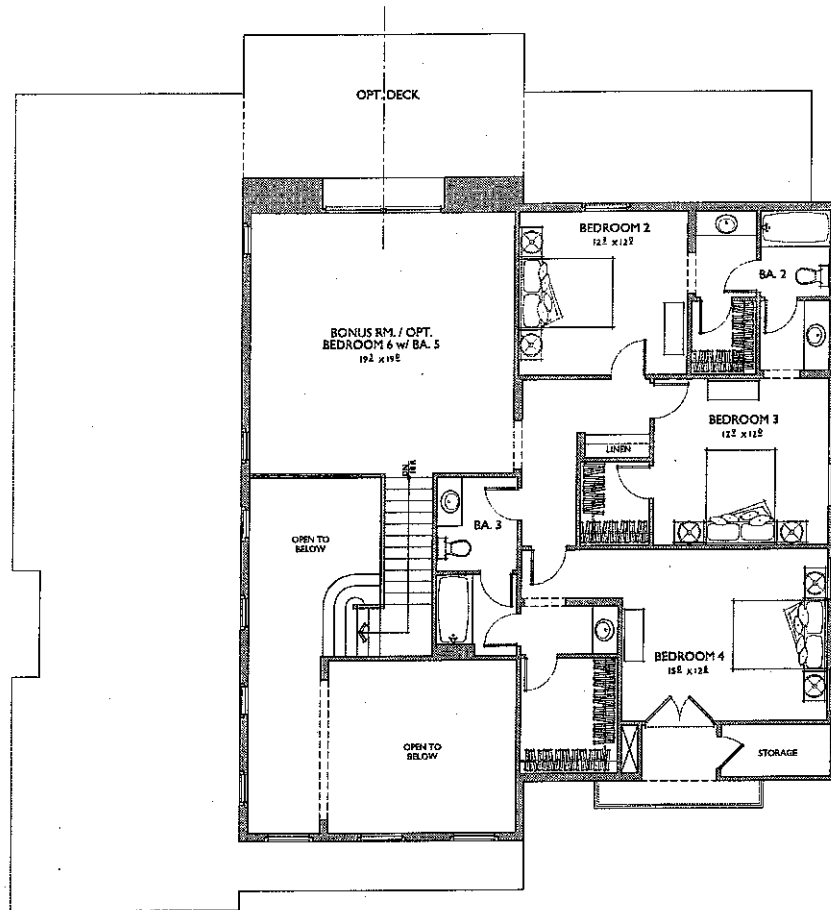
## PLAN I

REFLECTS SPANISH ELEVATION

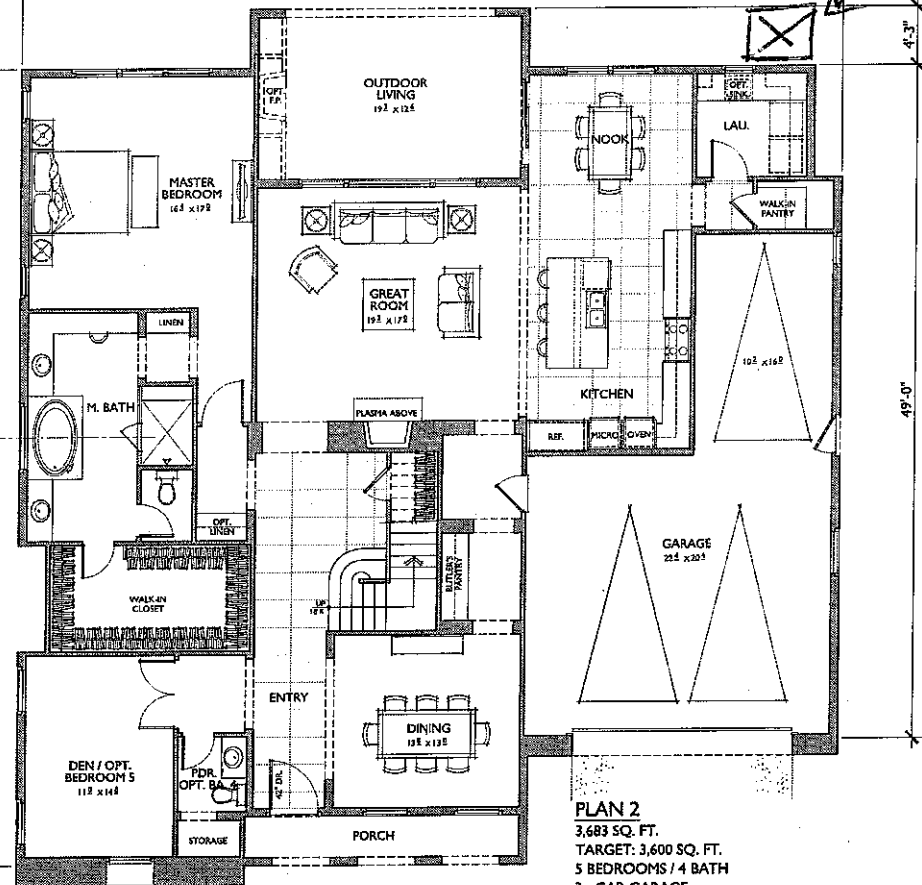
CROSBY ENCLAVE  
SAN DIEGO, CALIFORNIA



**Bassenian Lagoni**  
ARCHITECTS • PLANNING • INTERIORS  
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549.11137  
PHOTOS BY TONY LUTHELMANN



SECOND FLOOR



FIRST FLOOR

**PLAN 2**  
3,683 SQ. FT.  
TARGET: 3,600 SQ. FT.  
5 BEDROOMS / 4 BATH  
3 - CAR GARAGE

FLOOR AREA TABLE	
1ST FLOOR	2,321 SQ. FT.
2ND FLOOR	1,362 SQ. FT.
TOTAL	3,683 SQ. FT.
GARAGE	646 SQ. FT.
PORCH	74 SQ. FT.
OUTDOOR LIVING	245 SQ. FT.

NOTE: SQUARE FOOTAGE MAY VARY DUE TO METHOD OF CALCULATION

11.09.11

SCALE: 1/4" = 1'-0"

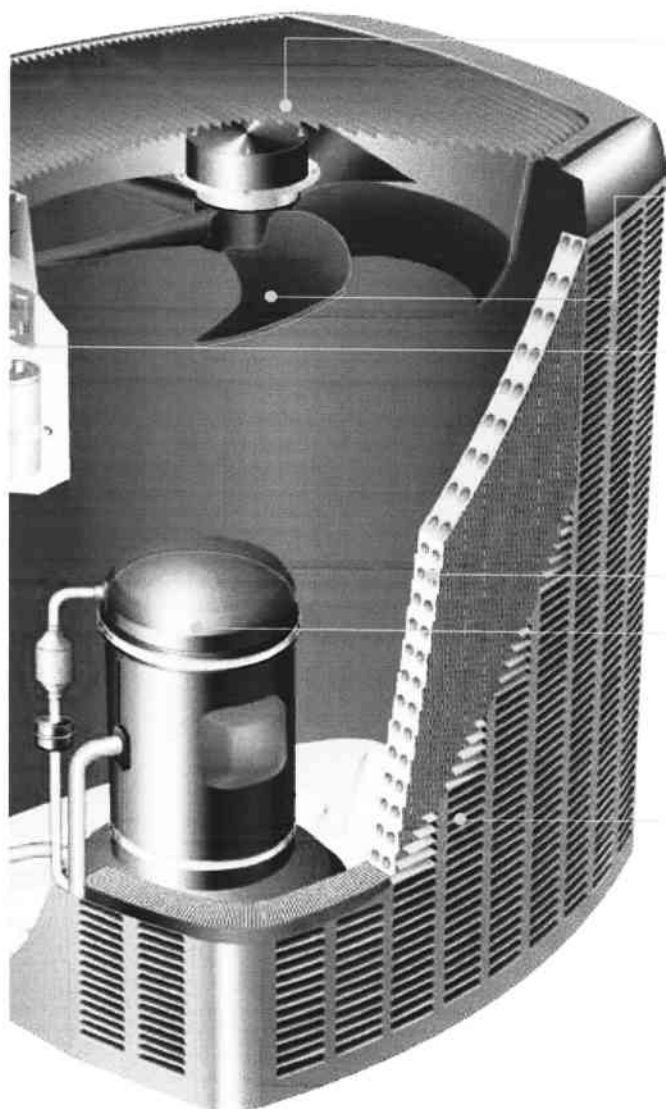


# **PLAN 2** REFLECTS SPANISH ELEVATION

**CROSBY ENCLAVE**  
SAN DIEGO, CALIFORNIA

**Bassettian / Lagoni**  
ARCHITECTURAL PLANNING & INTERIOR DESIGN  
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549.11137





**SilentComfort™ Fan Grille** – Uses patent-pending, vortex-suppression technology to reduce sound of airflow exiting unit, providing a quieter environment outside your home.

**SilentComfort Outdoor Fan Motor with Composite Fan Blades** – Provides extremely reliable starting and running performance, even under the harshest outdoor conditions.

**icomfort®-Enabled Technology** – Allows the XC17 to exchange information with other home comfort system components and make adjustments as needed to optimize performance and efficiency.

**High-Efficiency Outdoor Coil** – Provides exceptional heat transfer and low air resistance for high-efficiency operation that can lower your cooling bills.

**Dependable Scroll Compressor with SilentComfort Technology** – Provides smooth, efficient and reliable operation.

**Durable Steel Cabinet** – Made to last with superior high-quality, pre-painted steel and textured finish. Tested to withstand the harshest environments.

**Humiditrol® Compatible** – Manages the moisture in your home's air for greater comfort and improved indoor air quality.

#### DATA LENNAX®/LENNIX® COLLECTION XC17 SPECIFICATIONS

Model XC17	024	030	036	042	048	060
SEER	Up to 18.00	Up to 17.00	Up to 16.70	Up to 16.70	Up to 16.50	Up to 15.50
Sound Rating-dB	62	64	70	70	73	72
Dimensions (inches) (inches)	41 x 35-1/2 x 39-1/2	47 x 35-1/2 x 39-1/2	47 x 35-1/2 x 39-1/2	47 x 35-1/2 x 39-1/2	47 x 35-1/2 x 39-1/2	47 x 35-1/2 x 39-1/2
Dimensions (mm)	1041 x 902 x 1003	1194 x 902 x 1003	1194 x 902 x 1003	1194 x 902 x 1003	1194 x 902 x 1003	1194 x 902 x 1003



Proper sizing and installation of equipment is critical to achieve optimal performance. Split system air conditioners and heat pumps must be matched with appropriate coil components to meet ENERGY STAR® criteria. Ask your Lennox Dealer for details, or visit [www.energystar.gov](http://www.energystar.gov).



**Note:** Due to Lennox' ongoing commitment to quality, all specifications, ratings and dimensions are subject to change without notice. Always verify actual system efficiencies through AHRI or by visiting the AHRI ratings database at [www.ahridirectory.org](http://www.ahridirectory.org).

\*Applies to residential applications only. See actual warranty certificate for details.

## Footnotes

1. **The most efficient and quietest furnace you can buy (SLP98V)**

Based on sound pressure levels during steady-state, high-fire and low-fire operation of Lennox SLP98VUH070V competitive units at mid-point temperature rise and minimum external static pressure when set up per Section 260. Efficiency ratings established per test standard: ANSI/ASHRAE 103-2007.

2. **The quietest furnace in its class (SL280V)**

Based on sound pressure levels during steady-state, high-fire operation of Lennox SL280UHV070V36A and leading competitive units at mid-point temperature rise and minimum external static pressure when set up per Section 4.5.3 of AHRI's test standard: 270.

3. **The most quiet and efficient central air conditioner and heat pump you can buy (XC21/XP21)**

A combination of sound ratings established per AHRI's test standard: 270 and efficiency ratings established per test standard: ANSI/AHRI 210/240-2008.

4. **The quietest central air conditioner or heat pump you can buy (XC17/XP17)**

Air conditioners/heat pumps have sound ratings established per AHRI's test standard: AHRI 270. Size for size, family, these air conditioners/heat pumps have the lowest published sound ratings of any major U.S. brand of conditioning/heat pump equipment.

5. **The quietest and most efficient air handler you can buy (CBX40UHV)**

Based on sound pressure levels during operation of CBX40UHV-36 with factory installed MERV16 Precision Pleated and leading competitive three-ton units at equivalent static pressure when set up per section 4.5.3 of AHRI's test standard: AHRI 260-2001; and efficiency (CFM/Watt) ratings established per AHRI's test standard: ANSI/AHRI 210/240-2008.

6. **The most efficient single-stage air conditioner and heat pump you can buy (XC17/XP17)**

Efficiency claim based on comparison of single-stage air conditioning and heat pump products' SEER/HSPF as published by AHRI (December 2009). Actual system combination efficiency may vary. Consult a Lennox dealer or AHRI at [www.ahridirectory.org](http://www.ahridirectory.org) for exact system efficiencies.

MECHANICAL EQUIPMENT NOISE LEVEL

Location:

Lot 4/Lot 5                      0                      0                      190.6

Leq (h) at 50'	Receiver Elevation	Source Elevation	Source to Receiver	Source to Barrier	Receiver to Barrier	Barrier (base)	Barrier Height	Fresnel No.	Barrier	Leq w/o Barrier	Leq w/Barrier
(dBA)	(feet)	(feet)	(feet)	(feet)	(feet)	(feet)	(feet)	at 500 Hz	Attenuation (dBA)	(dBA)	(dBA)
41	195.6	194	13	8	5	190.6	6.0	0.39	10	53	43

